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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/683,749	10/10/2003	Shahram Farhangi	67397-040 PUS1	2821

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EXAMINER	
RODRIGUEZ, WILLIAM H	

ART UNIT	PAPER NUMBER
3746	

MAIL DATE	DELIVERY MODE
04/14/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/683,749	**Applicant(s)** FARHANGI, SHAHRAM	
	Examiner William H. Rodríguez	**Art Unit** 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2008*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.
  4a) Of the above claim(s) *5-17,19,20 and 24-32* is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-4,18 and 21-23* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *10 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date *01/08/2004*.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the election/restriction response filed 03/10/2008.

Election/Restrictions

1. Applicant's election with traverse of invention I, Species I (claims 1-4, 18 and 21-23) in the reply filed on 03/20/2008 is acknowledged. Applicants did not provide any grounds for the traversal. The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1 recites the limitation "said injector manifold region" in line 8. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim Objections

5. Claims 1 and 18 are objected to because of the following informalities:

6. The recitation "wherein a fuel……..substantially mix with the fuel before said fuel reaches an ignition temperature" in lines 8-10 is presumed to be --wherein a fuel……..substantially mix**es** with **the oxidizer** before said fuel reaches an ignition temperature-- for proper clarity. Appropriate correction is required.

7. The recitation "wherein said fuel substantially mixes with the high energy oxidizer fuel stream" in lines 8-10 is presumed to be --wherein said fuel substantially mixes with the high energy oxidizer stream-- for proper clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

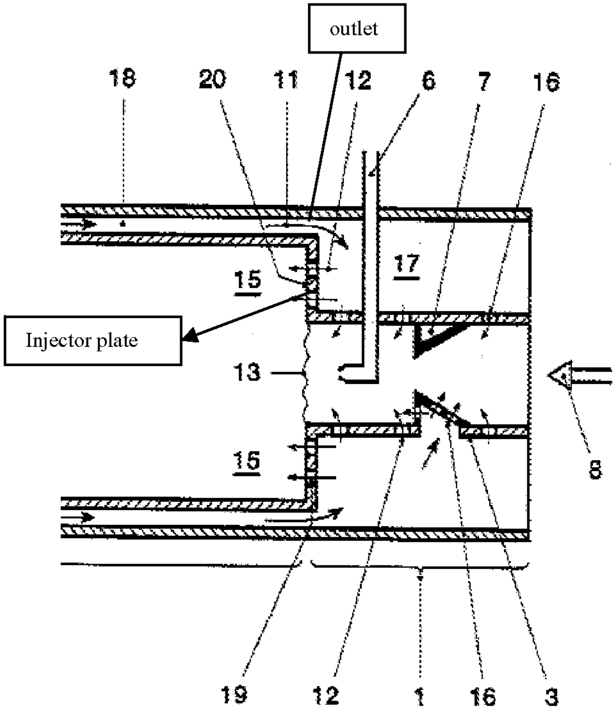
9. Claims 1-3, 18 and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiomi Hajime (JP 60-64131).

Hajime (see particularly figures 2, 4 and 5) teaches a combustion system comprising: an oxidizer flow pathway (path through which oxidizer 12 is flowing outside of liner 4) through which an oxidizer flows in a selected direction out an outlet (openings in liner 4) into a combustion area; an injector plate (6, 7) disposed near said outlet (openings in liner 4 allowing oxidizer to flow from the oxidizer flow path into the injector plate); an injector port 9 defined by said injector plate; a fuel manifold region 13 operably associated with said injector plate (6, 7); wherein a fuel disposed in said injector manifold region is operable to be injected into said combustion area and substantially mixes with the oxidizer, wherein said injector plate has a front face and a rearward face, said oxidizer pathway is defined between said front and rearward faces, wherein said oxidizer pathway is formed in an angle relative to the front face (90 degrees angle), wherein said fuel manifold region is a fuel injector which faces the rearward face of said injector plate.

10. Claims 1-3, 18 and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsukahara Satoshi et al. (JP 58-179730).

Tsukahara (see particularly figures 1 and 2) teaches a combustion system comprising: an oxidizer flow pathway (path through which oxidizer 15 is flowing outside of liner 2) through which an oxidizer flows in a selected direction out an outlet (openings in liner 2) into a combustion area; an injector plate (5 or 6 or 7 or 8) disposed near said outlet (openings in liner 2 allowing oxidizer to flow from the oxidizer flow path into the injector plate); an injector port defined by said injector plate; a fuel manifold region (9-13) operably associated with said injector plate; wherein a fuel disposed in said injector manifold region is operable to be injected into said combustion area and substantially mixes with the oxidizer, wherein said injector plate has a front face and a rearward face, said oxidizer pathway is defined between said front and rearward faces, wherein said oxidizer pathway is formed in an angle relative to the front face (0 degrees angle), wherein said fuel manifold region is a fuel injector which faces the rearward face of said injector plate.

11. Claims 1-3, 18 and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Benz et al. (US 5,497,611).



Benz teaches a combustion system comprising: an oxidizer flow pathway (path through which oxidizer 10 is flowing outside of liner 5) through which an oxidizer flows in a selected direction out an outlet (see figure above) into a combustion area; an injector plate 20 (see figure above) disposed near said outlet (see figure above); an injector port defined by said injector plate; a fuel manifold region 6 operably associated with said injector plate; wherein a fuel disposed in said injector manifold region is operable to be injected into said combustion area and substantially mixes with the oxidizer, wherein said injector plate has a front face and a rearward face, said oxidizer pathway is defined between said front and rearward faces, wherein said oxidizer pathway is formed in an angle relative to the front face (0 degrees angle), wherein said fuel manifold region is a fuel injector which spans along a plurality of oxidizer flow paths.

12. Claims 1-3, 18 and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamanaka et al. (US 5,497,611).

Yamanaka (particularly figures 2, 3) teaches a combustion system comprising: an oxidizer flow pathway (path through which oxidizer is flowing outside of liner) through which an oxidizer flows in a selected direction out an outlet 28 into a combustion area; an injector plate 38 disposed near said outlet (closest outlet/opening 28); an injector port defined by said injector plate; a fuel manifold region 52 operably associated with said injector plate; wherein a fuel disposed in said injector manifold region is operable to be injected into said combustion area and substantially mixes with the oxidizer, wherein said injector plate has a front face and a rearward face, said oxidizer pathway is defined between said front and rearward faces, wherein said oxidizer pathway is formed in an angle relative to the front face (0 degrees angle), wherein said fuel manifold region is a fuel injector which spans along the oxidizer flow paths (see element 52 in figure 3).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiomi Hajime (JP 60-64131); or Tsukahara Satoshi et al. (JP 58-179730); or Benz et al. (US 5,497,611); or Yamanaka et al. (US 5,497,611).

Any of the above references teaches a plurality of outlets and a plurality of injector plate ports. These references do not teach that the ratio of outlets to injector ports is approximately 4:1. However, to the extent that the claimed invention produces the claimed desired results (mix fuel with air), the applied prior art structure being the same, does the same. In addition, it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation". Therefore, for any of the references above, one of ordinary kill in the art at the time the invention was made would have found it obvious to determine the optimum outlet to injector ports ratio in order to obtain the maximum efficiency of the system.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Rodríguez whose telephone number is 571-272-4831. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William H. Rodríguez/
Primary Examiner, Art Unit 3746